

## For Rotation Monitoring

The SR1V5 series speed relay modules are intended for use with all 4b Rotech motion sensors, shaft encoders, wheel encoders and proximity probes to detect if the speed of a rotating shaft rises or falls below a preset level.



EU Directives

### FEATURES:

Dual ac supply standard - (optional - 12/24 volt D.C.)

Easy setting of required trip/alarm speed directly in RPM

Three speed ranges are available on each module. Standard ranges are 1-10 RPM, 1-100 RPM and 1-1000 RPM. The required range being selected by link on the terminal rail. Other modules are available with ranges covering the speeds 0.01 RPM to 20,000 RPM.

In normal operation the output relay of the module is energised if the speed of the shaft is above the set level and de-energised if the speed is below the set level.

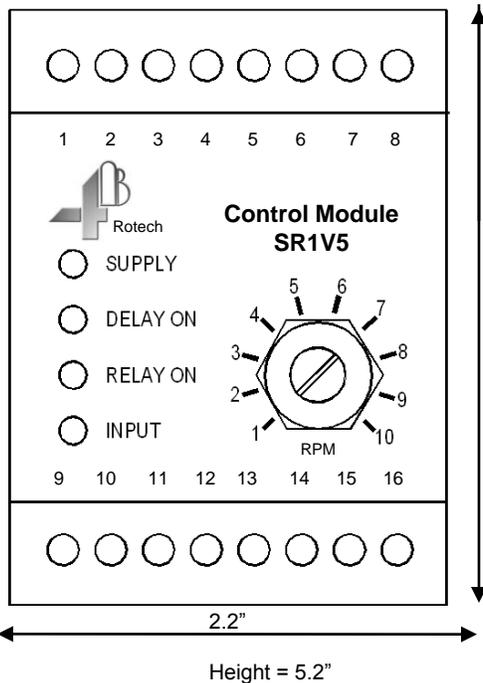
An internal 10 second delay timer is fitted as standard to allow for the run up time of the drive being monitored.

An opto-isolated input signal repeat output fitted as standard.

Front mounted led's indicate power on, delay on, relay energised, and input signal status.

# Dimensions and Installation

BETTER BY DESIGN



1	AC Supply	$\left. \begin{array}{l} 110/120V \\ 50/60Hz \end{array} \right\} 220/240V \\ 50/60Hz$	1	12/24VDC-Positive							
2	AC Supply		2	12/24VDC-Negative							
3	Neutral			DC Power supply							
4	N.O.	Output relay rated 250VAC/30VDC @5a									
5	Common										
6	N.C.										
7	10 Sec	Link for start up delay									
8	Delay										
9											
10	0-100 RPM	Link to terminal 14 for speed range Required – no links – 0 to 10 RPM									
11	0-1000 RPM										
12	0VDC	<table style="display: inline-table; vertical-align: middle;"> <tr> <td>Blue</td> <td rowspan="2">} 2 Wire</td> <td>Blue</td> <td rowspan="2">} 3 wire sensors</td> </tr> <tr> <td>Brown</td> <td>Type N</td> <td>Brown</td> <td>Type A,B &amp; C</td> </tr> </table>	Blue	} 2 Wire	Blue	} 3 wire sensors	Brown	Type N	Brown	Type A,B & C	
Blue	} 2 Wire		Blue		} 3 wire sensors						
Brown			Type N	Brown		Type A,B & C					
13	Signal										
14	+12VDC										
15	+	Opto – isolated repeat output 1.2V/80 mA									
16	-										

Note: for A Type sensor, a 1K resistor must be fitted between terminals 13 & 14

Note: typical part no = SR1V5 – 10

SR1V5 = speed relay-advanced series

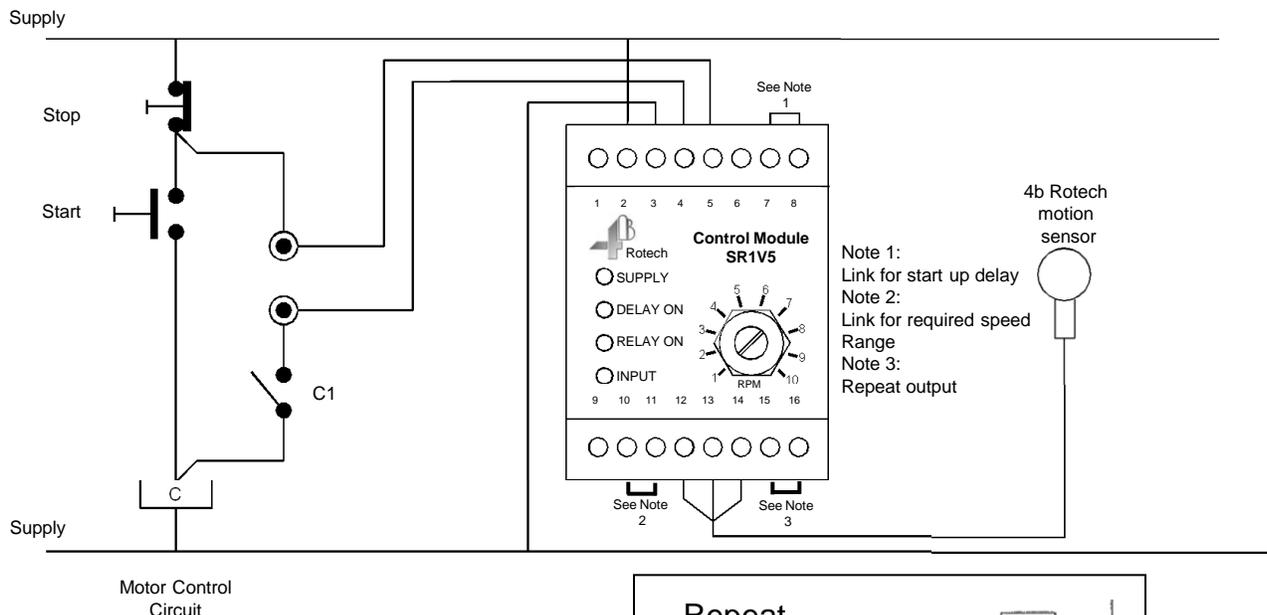
10 = calibrated for use with

10 pulse per rev motion sensor

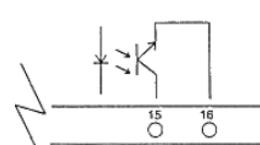
Shown in inches

Note: start delay — The 10 second start delay operates every time an external switch or contact connects terminal 7 & 8. Alternatively with a fixed link between terminals 7 & 8, the 10 second delay will operate every time power is applied to the module.

Typical installation shown for 110/120 V AC supply



Repeat  
Output  
Facility



**Mounting** - DIN 1.5"x3/4" RAIL  
**Environment Ingress** - IP 50  
**Temperature** - -14°F to +158°F

**Commissioning and testing must only be carried out by a qualified and competent technician who is fully familiar with the plant to which the "4b Rotech" equipment is installed**

1. The SR1V5 monitors the speed of a drive and gives a signal if the speed of the drive falls below or rises above its normal running speed. The output relay of the SR1V5 can be connected to give a variety of control functions.
  - i. The output relay can be connected to sound an alarm, bring on a warning light, etc.
  - ii. It can be connected into the motor control circuit to switch off/trip out the drive motor.
  - iii. It can be connected into the motor control circuit of a conveyor, machine, etc. preceding the drive to which it is fitted, to stop the delivery of material, etc. to the drive that has slowed down or stopped.
  - iv. With the use of additional control relays and / or timers the above functions can be combined, plus many others created.
2. Use of the 10 second start up delay is optional. This feature is normally only required when the SR1V5 is connected as in 1.2 above and the time taken to reach normal running speed is several seconds or longer.
3. The repeat output facility allows the input pulses from the motion sensor/ encoder to be re-transmitted to other equipment. Typical applications are speed indication, secondary input to plc, computer, etc. Analogue conversion 0 to 10VDC/4 to 20MA, etc. or connecting two or more SR1V5 modules to a single motion sensor/ encoder to obtain multiple alarm/trip levels.

## SETTING UP

1. Check that all connections are correct and that links are fitted to select the correct speed range.
2. Turn the potentiometer on the SR1V5 speed relay fully anti-clockwise.
3. Start the drive and if the run-up delay facility is being used, wait 10 seconds until the "delay on" indicator is extinguished.
4. "Supply on" and "relay on" indicators should be illuminated and "input" indicator should be pulsing or partly illuminated.
5. Turn the potentiometer slowly clockwise until the "relay on" indicator extinguishes and note setting.
6. Turn potentiometer anti-clockwise until 'relay on' indicator illuminates, then turn clockwise and set to approximately 90% of the above setting.
7. The SR1V5 speed relay is now set to de-energise if the speed of the drive decreases below that set on the potentiometer.
8. If the drive is subject to temporary short period decreases in speed that you wish to ignore, the potentiometer can be set to 80%, 70%, etc. of normal running speed, the SR1V5 speed relay will then only de-energise if the speed of the drive falls below this setting.
9. Test by starting and stopping drive. When running normally "relay on" indicator will be illuminated. Observe that when the stop button is pressed, as soon as the drive speed decreases below that set on the potentiometer, the "relay on" indicator extinguishes.

1. **Important –**  
all connections and dis-connections must be made with mains power supply switched off.
2. Under normal running conditions “supply on” and “relay on” indicators should be illuminated.
3. “Input” indicator should be observed to pulse on and off when the drive is running slowly. At higher speeds on / off pulses become blurred and indicator is illuminated but not at full brightness. When fitted to higher speed drives the input can be tested by stopping drive and observing that at final few rpm before stopping “input” indicator pulses on and off. When stopped “input” indicator can be in either on or off condition. if no input signal is observed, check connections to motion sensor/ encoder are correct,
4. If input signal is still not observed proceed to 6.
  - I. If input signal is present but the SR1V5 cannot be set up correctly then proceed as follows:
  - II. Turn potentiometer fully clockwise, if “relay” on indicator does not extinguish, then the speed range selected is too low. Change speed range links on terminals to select a higher range.
  - III. Turn potentiometer fully anti-clockwise, if “relay on” indicator is not illuminated then speed range selected is too high. Change speed range links on terminals to select a lower range.
5. “Relay on” indicator extinguishes but does not stop drive motor. Check correct connections have been made to SR1V5 relay terminals (N.O. contacts 4 & 5) and that all external connections to motor control circuit are correct.
6. **Testing SR1V5 speed relay.**  
  
**. (For DC type VA/B/C/D motion sensors/encoders only)**  
  
Disconnect motion sensor/encoder connections to terminals 12, 13 & 14.  
Disconnect any speed range links to terminal 10 & 11.  
Connect a small switch or push button between terminals 13 & 14.  
Simulate input pulses by switching on and off at approximately 1 second intervals.  
“Input” indicator should operate and “relay on” indicator should illuminate.
7. Satisfactory completion of the above tests indicates that the SR1V5 speed relay is operating correctly.

If when the motion sensor/encoder is re-connected the system is not operational, then the problem is either with the installation cables or the motion sensor/encoder.

See appropriate installation data sheet for information on testing motion sensor/encoders.